MANKIND

OFFICIAL JOURNAL OF THE ANTHROPOLOGICAL SOCIETIES OF AUSTRALIA

ol. 3, No. 3 **August, 1942**

ORIGINAL ARTICLES:

ocial Anthropology. **Elkin.**

nthropology and the War. *By Professor A. P. Elkin, M.A., Ph.D.*

In time of national emergency, specialists in all services are anxious o put their particular knowledge and training at the service of their country. nthropologists are no exception. But what can they do? The study of ock engravings, kinship, totemism, cephalic indexes and archæological ecords do not seem to have much bearing on total war. That is true, ut such subjects as these do not exhaust the range of Anthropology. his science is concerned with the study of race, culture, social structure nd change, and the contact and clash of peoples and cultures. Therefore, t must be able to throw light on the problems raised by the present war or the latter is a complex phenomenon embracing race, culture, social tructure and the clash of cultures and peoples.

Anthropology and Race-Theories.

For example, Anthropology has exploded the Nazi propaganda doctrine hat the Germans are a pure Nordic race and because of their inherent iological supremacy are the creators and bearers of the only worthwhile ivilization, and therefore, the hope of the future. All this is *politically nspired and not anthropologically based.* Italians and Japanese leaders, oo, are inclined to put forward similar views, as part of the mechanism or bolstering up the morale and subserviency of their people—views which re just as baseless. As a counter, or at least preventive, measure to this, nthropologists should spread a knowledge of the scientific facts regarding ace and culture. The Penguin book, *We Europeans*, by A. C. Haddon and Julian Huxley, is a help in this regard.[1]

[1] *Vide* also A. P. Elkin, " Presidential Address to the Royal Society of New South Wales, 1941," *Journal and Proceedings of the Royal Society of New South Wales*, Vol. LXXV, pp. 11-14.

War—A Cultural Phenomenon.

Likewise, Anthropology shows that *war is not biologically determined*, but *culturally conditioned*.[2] Therefore, if we are to understand the present war or even to make the world free of wars, we must study the cultural causes of war—psychological, economic, territorial and political, together with the skilled use of propaganda. Once, however, the nation is embroiled in war and fighting for its very existence, anthropologists will not stand aside academically studying the cultural and social happenings around them—like a field-worker observing a tribal fight in Papua. On the other hand, they will not necessarily be making their best contribution by enlisting in the fighting forces or various intelligence departments (unless specially constituted). Their knowledge and study of the phenomena and laws of social structure and change, and of the relation of the individual to society, gained in many regions, is of practical importance in marshalling a nation for total war—in the use of propaganda, in maintaining morale, in evaluating the effects of necessary economic and social changes on the national fabric, on the position of women, the nature of the family, and on other institutions. Anthropology understands the inter-relation of political, social and economic factors, and that modification of one may affect all the others.

Anthropology and Reconstruction.

Anthropologists, too, should make a contribution to the problem of reconstruction, by an examination of the changes that are upon us. Will these be permanent ? Will and can there be a return to the old ways of life and organization ? No doubt there will be in the case of most people a tendency to return—to rest in the blessedness of cessation of war, without undertaking any tasks of reconstruction. Conservatism and the fear of change are powerful forces, especially in the middle-aged. The young may be more venturesome, and the aged are not often concerned with great social changes. They have had their day and desire rest. On the other hand either (i) a strong minority organization, well led and with certainty of purpose, or (ii) a clash between strong groups (or segments) within the society, may confirm or accelerate changes inaugurated by the war.

Anthropologists are accustomed to studying each phenomena in a variety of societies, and advising and training administrative officers to

[2] A. P. Elkin, *The Individual, Society and Change*, pp. 70-9.

deal with the same. This is, of course, social anthropology, which is usually termed sociology when limited to the study of our own society.

Anthropology and other Peoples.

Finally, Anthropology can assist materially in forming our policies towards allies, neutrals and enemies and the native races with whom we are concerned in the war. Such policies and our attitudes and propaganda, if to be successful, must be based on an understanding of the culture, the way of life and values of the people with whom we are dealing. And one of the main tasks of Anthropology is to provide that understanding, be it about the military-religious-Mikado-worship complex of the Japanese or the attitude that might have been adopted by the British in the Malay Peninsula, but generally speaking, was not adopted, and the effect of Japanese infiltration in New Guinea. Anthropology can advise, and is so doing, on the effect of defence preparations in northern Australia on our own Aborigines, and urge that everything possible be done to prevent and certainly cushion contact between nomadic Aborigines and our forces, and where the former are employed to beware of uprooting them from their way of life. They are citizens and our charge, not mere ciphers or a lower type of workman.

In this note, I have merely made a few suggestions of the contributions which could be made by anthropologists to the nation in this time of emergency and crisis, and in the days of " reconstruction " which lie ahead. The call is to all anthropologists, and to all really interested in the study of society, to fortify themselves with knowledge in one or more of these fields, to pass such knowledge on to others, and also to use it on committees and panels, both now and when the peace comes. The need is for that calmness, decision and determination which a grasp of facts and principles alone can give—a grasp which is based on the adoption of the scientific attitude to the problems of social and international life.

A. P. Elkin.

The following numbers of Mankind are available: Vol. I, Nos. 2-10, 12, and Vol. II, Nos. 1-4, at two shillings per part; Vol. II, Nos. 5-9, and Vol. III, Nos. 1-2, at three shillings and sixpence per part. Please address inquiries to the Honorary Treasurer, Anthropological Society of New South Wales, c/o Australian Museum, College St., Sydney.

The Narrative in Tanga. *By F. L. S. Bell. Continued from Vol. III, No. 2.*

Here follows Nuba's story of Dafal and the Sparrow.

Two brothers had a sister who had just recently emerged from the *dafal* house. These three went fishing on the reef one day with a net. The two brothers were named Kumi and Bintaufi. Their sister, hereinafter referred to as *dafal*, took along her basket and sat on a large rock awaiting the fish which her brothers had promised to catch. Very soon some fish got caught in the net. Bintaufi turned the net and Kumi grasped the fish. He took them along to his sister and Bintaufi went on fishing. When Kumi came up to his sister, he placed his hand on her private parts.[8] *Dafal* began to cry, and when Kumi returned to his brother, Bintaufi asked him why the girl was crying. Kumi said, " Oh, for nothing at all. She says the basket is very heavy for her to lift and she only cries out at the weight of it." Both brothers then heard a loud noise and on looking back they saw that the stone upon which *dafal* had been sitting had now rolled over on top of her and she was entirely covered by it. They then went ashore and their parents asked them where *dafal* was. They explained that the big stone on which *dafal* had been sitting had rolled over on top of her.

The parents then gathered many pigs together and much vegetable food and invited all the men of the district to a feast. When all were assembled, the father of *dafal* explained what had happened to his daughter and asked them to go out on to the reef, break up the stone and so release his daughter.

One little fellow—a bird really—called Pir-Pir the Sparrow, cried out, in his treble voice : " Give me a little piece of pig and I too will go out and break up the stone." They all replied : " You are not a big strong person. You cannot break this stone. Go away. This food is not for you."

[8] There is very strict avoidance in Tanga between brothers and sisters who are sexually mature, and it is to be assumed that the girl in this story is in the pre-pubertal stage. Nevertheless, no boy would ever indulge in the slightest sexual play with his sister no matter what their respective ages might be. To do so would be to commit a grave sin against the moral code of the community.

They all went down to the reef and tried to break up the stone but their efforts were of no avail. The stone was too hard and they returned to the father of *dafal* telling him that it was impossible to break the stone, that he should let the matter drop and that the stone must stop on top of *dafal*.

The little sparrow then went down to the reef, and picking up a small stone from a nearby pool he sang a little magical song, hit the large stone with the small stone and lo and behold, the rock fell to pieces and *dafal* came out. She went with the sparrow to the sacred garden of decorative shrubs near the *dafal* house. This garden is taboo to all men and the sacred gong which stands within it is also very taboo. The sparrow hit the gong and the father of *dafal*, very much surprised and angry, sent Bintaufi to see who had touched the sacred gong. The sparrow hid in the gong and when Bintaufi arrived at the house he could not see anyone. He returned to his father and told him that there was no one there. The sparrow again struck the gong, and this time the father sent his wife to see who it was. The sparrow hid again and the mother of *dafal* returned to her husband bearing the same report as Bintaufi. The sparrow again struck the gong and this time the father of *dafal* went to see who was breaking the taboo relating to the gong. He saw the sparrow and the sparrow asked him : " Have all the men finished breaking open the stone ? " The father replied : " No fear, they could not break the stone." The sparrow then said : " Go and look at your sacred garden over there. The pigs have got in and eaten it all down." The father went over to the garden and there discovered *dafal*. She told him that the little sparrow had released her and brought her to the garden. The father then invited all the men to a large feast and he announced that he was giving his daughter in marriage to the sparrow.

All the men were much ashamed at hearing that the sparrow had broken the stone and at their having refused to give him food at the other feast. The sparrow then took *dafal* to his house to live.

Pil Kasu Red.

By this time it was dark and the moon was just about to rise. One of the men whirled a smouldering torch of dead leaves around his head and it was soon aflame. From this torch other members of the party lit flares and very soon we arrived at the beach. The glow of the fires of the

party's family settlement could be seen about a mile away. The sight of the moon just rising out of the sea reminded Nuba of another story about Dafal and the Sun. To the Tangan, the moon is merely the nocturnal aspect of the sun.

Here follows the story of Dafal and the Sun :

Dafal was in her house and beside the house there grew a nut tree. A small child attended to the wants of *dafal* whilst her parents worked in their gardens. They worked during the night and slept during the day, because they feared the spears of the sun. It was said that if a man were speared by a ray from the sun, his " bones turned to jelly " and his skin became burned.

One day Dafal heard a nut fall from the tree which grew beside her house. She asked the small child to bring her the nut. The child brought her the nut and shelled it for her. The parents of *dafal*, on paying her a visit that evening, noticed the shell of the nut and asked who brought her the nut. Dafal then told them about the small child who had been waiting upon her whilst they were asleep. The parents are pleased at the kind attention paid their daughter by the small child and make him official food bearer and attendant upon *dafal*.

In the morning the sun rises in the sky and peers down in an attempt to see *dafal*. He goes over the top of the nut tree and drops a small stone. Dafal hears the stone fall and, thinking it is a nut, asks the small child to get it for her. The child looks for the nut but cannot find it. The sun then drops three more stones and the child makes three more fruitless attempts to find the nuts. Upon a fifth stone being dropped, *dafal* herself leaves the *dafal* house and, after warning the child to keep a watch out for any possible intruders, makes a search for the nuts which she thinks she heard fall. The sun sees her and lays a loop of rope in her path. She steps on to the loop and is drawn up into the sun. The child sees *dafal* being drawn up into the sky and cries out : Dafal, Dafal, where are you going ? The parents of *dafal* hear the child calling out and rush towards the *dafal* house but the sun shoots at them with his spears. They are frightened to move and wait inside their house. The child tells them that the sun has taken their daughter. The parents then organize a search for *dafal* by calling together all the clans on Tanga. Each clan is repre

sented by its totem animal. They cut down trees and make outrigger canoes in order to reach the place of the rising sun beyond the horizon. Whilst they are eating the feast to celebrate the completion of their canoes, a little sparrow pipes up a request for a small piece of meat. He goes to each clan in turn and asks in his small squeaky voice for some pork. Each clan says to him : " Go away, you are too small to eat meat. This meat is food fit only for those who will shortly make a long journey over the deep sea in search of *dafal*."

Whilst the totem birds have been making their canoes, the sparrow has built a beautiful canoe for himself from the wood of a special tree. His canoe is much better than those of the totem birds who are not skilled in the making of canoes. He hides this canoe in the bush and when all the other birds are about to launch their canoes he visits each in turn and asks to be taken along. He is treated with contempt by all the birds but he does not mind, since he is a skilled weather magician and knows that strong winds and heavy rain will drive all the birds back to Tanga. He watches them paddle out beyond the reef and then goes back to his canoe and adjusts the outrigger. Very soon he notices all the canoes being driven back to Tanga by a storm and is much amused by each bird's attempt to make the magic for calm weather. (The narrator here goes through the whole list of totem animals and imitates the natural call of each in an attempt to convey the hopeless confusion and utterly inadequate magical powers of the animals.)

When he has finished adjusting the outrigger on his canoe, the sparrow takes it out for a trial run. Convinced that all is well, he now beaches it and once again approaches the birds who are again eating a feast provided by the father of *dafal*. He repeats his requests for meat and is again rebuffed. Close to the *dafal*-house there is a garden, in which beautiful red and yellow shrubs are growing and tall betel-nut palms and spreading *sumpok*[9] vines. Within the vicinity of this garden perfect silence must prevail. Although there is a gong near the house, to sound it is strictly forbidden.

At sunrise the next morning, the sparrow steals up to this garden, fills a basket with some especially fine betel-nut and *sumpok* and gathers a bunch of leaves from the red and yellow shrubs. These leaves

[9] *Sumpok* is a vine which provides a mildly excitant drug much sought after by the atives of Tanga.

are most efficacious in the production of calm weather. He places some of them on the front of his canoe and then stocks the vessel with plenty of food and water. He launches his canoe and paddles for a long time in the direction of the place of the rising sun. A high wind and much rain and a violent storm break over him. He gathers up a bunch of the leaves which he has brought with him and sings over them the charm for calm weather:

Let calm seas come. Burn up the rain in this place and clear away the darkness.

Let calm seas come. Let calm seas come, Oh Selamuson.[10]

Very flat water come. Clear away this gloom and bring calm weather.

(Exclamations of delight at the coming of calm seas.)

You know me, I that am like unto the beautiful flower of the *kunai* grass.

As a result of this magic the weather improves, and it is no time before the sparrow beaches his canoe in the land of the Sun. He hides it in the bush and then goes in search of *dafal*.

He finds her sleeping beside the Sun. In the morning, the Sun leaves *dafal* and goes up into the sky. The sparrow approaches *dafal* but does not reveal himself. He throws some betel-nut at her and she immediately recognizes it as having come from her father's garden. She cries out at the sight of the big yellow nuts and the sparrow then throws her some of the *sumpok* which he took from her father's garden. She recognizes this also and the sparrow then reveals himself. *Dafal* is so pleased to see someone from Tanga that she says she would even eat his fæces.[11] She then warns the sparrow against being seen by the Sun or by any of his wives. He hides himself beneath some banana leaves and she feeds him on stolen yams and *kau-kau*. He then asks her about the movements of the Sun at night. She explains that the Sun sleeps like a log but he lies in such a position that were she to make the slightest move he would be aroused. He lies with *dafal* in a close embrace. The sparrow then advises her not to worry, as he has a plan to deceive the Sun. He goes into the bush and cuts down a banana tree, the wood of which is soft and sappy. He shapes

[10] Selamuson was an ancestor famed for his magical control of the weather. All such charms are sung to a particular ancestor who is called upon to lend his magical aid.

[11] This is the most extravagant expression of affection known to these people.

the trunk of the tree into the form of a woman and hides it under some leaves.

In the morning the Sun goes on his journey again and the sparrow asks *dafal* to get him a ginger plant.[12] She brings him the plant whilst the other wives are undoing the oven and he immediately breathes into it a spell which has the effect of causing anyone who comes under its influence to sleep " like a wood pigeon." He tells her to hang this up in the house immediately over the place where the Sun sleeps at night. He then asks her where the Sun keeps his spears. She tells him that they are kept close to the door of the house. He then tells her that he will visit her that night and take her back with him to Tanga. At the dead of night he gets his banana-wood effigy and brings it to the house where the Sun is sleeping. He then cuts a deep notch around the points of all the Sun's spears. Whilst he is doing this, *dafal* gently disengages herself from the embrace of the magically drugged Sun and creeps out of the house. The sparrow then picks up his effigy and places it in the arms of the Sun. He and *dafal* then hasten towards the place where he has hidden his canoe and they both paddle hard in the direction of Tanga.

In the morning, the Sun wakes up and is very angry at the trick which has been played upon him. He grabs up his bundle of spears and goes up into the sky in search of the fugitive *dafal*. He catches sight of the small canoe, containing *dafal* and the sparrow and immediately launches his spears at it. Of course, the points break off as soon as they hit the canoe and both *dafal* and the sparrow make a safe voyage to Tanga. Ever since then the people of Tanga have been able to work in their gardens during the day and sleep at night because the rays of the Sun are no longer dangerous.

The sparrow takes *dafal* to the sacred garden near the *dafal*-house and stands her beside a tall yellow shrub. He decorates both himself and *dafal* and then beats a signal on the sacred gong. The father of *dafal* sends two children to find out who is beating the gong. The sparrow hides in the gong and *dafal* is hidden by the tall yellow shrubs. The children return to the father of *dafal* and report that they cannot see anyone near the gong. The sparrow again beats the gong and the father of *dafal* again sends the children to find out who is the

[12] The ginger plant is used, perhaps more than any other object in Tanga, as a vehicle magic.

culprit. (This is repeated three times.) At the fourth beating of the gong the father himself comes to the *dafal*-house and is greeted by the sparrow. The father asks why he sounded the gong and the sparrow replies: "Not for nothing. I have just come from the sacred garden and the pigs have trampled down your beautiful shrubs." The father then knows that the sparrow has brought back *dafal* and is hiding her in the sacred garden. He invites the sparrow to enter his house and then both he and his wife go to the sacred garden, where they find *dafal*. They bring her back to the *dafal*-house and place her once again in the wicker cage.[13]

The father of *dafal* then goes to his own house and the sparrow asks him: "Did you see the sacred garden all trampled down by the pigs?" The father replies: "Yes, I saw it," and he then laughs in a very knowing and pleased fashion. He offers the sparrow some of his best betel-nut and *sumpok* and calls up all his relatives and friends by beating a signal on the gong. When all are assembled, each of the totem animals tells a mournful story of how the bad weather prevented him from reaching the land of the Sun. (At this point in the story the narrator gave a good imitation of each of the animals involved.) When they see the sparrow and the father of *dafal* sitting side by side, eating the sacred betel-nut, they all know that the sparrow has rescued *dafal*. They ask him how he accomplished the feat, but he only laughs at them.

A great feast is then organized and the next day *dafal* is ceremoniously carried from her wicker cage out of the *dafal*-house to the dancing square, where she is placed beside the sparrow on a special display bench. The pair of them are richly decorated with feather ornaments and shell necklaces and are overloaded with valuable presents. (In the full version of this story every single step in the very complicated ritual of restoring *dafal* to society is related.)

The father announces that he has given his daughter in marriage to the sparrow. The totem animals then begin to quarrel and criticize each other. (In relating these quarrels the defects and the qualities of each animal are carefully brought out. It would be useless to give the details here unless they were supported by copious notes on the characteristics of each totem animal.)

[13] For a full explanation of the rite, see F. L. S. Bell, "Dafal," *Journal, Polynesian Society*, Vol. 45, No. 3.

A little black bird, called a *kok-da:k*, will have nothing to do with the quarrelling animals. He runs up to *dafal* and the sparrow and offers to fetch and carry for them as long as they will give him a home. However, *dafal* and the sparrow do not want this little bird intruding on their privacy and when they leave the feast and arrive at the house of the sparrow they shut the *kok-da:k* out. He goes to sleep beside the entrance to the house and during the night a big rain storm sweeps the island, thoroughly drenching him. His right leg becomes stiff and straight. Even to this very day the *kok-da:k* walks with a stiff-legged action.

The sparrow builds a beautiful new house for himself and *dafal* and the roof of this house is of a special design termed *an go go*. On seeing how beautiful the house has been built all the other totem animals imitate the sparrow's design.

Pil Kasu Red.

By the time Nuba had finished this tale we had arrived at the family ttlement and the men separated from the women. The former made for ıe long low men's house and the latter divided up into groups, going ıch to her own cook-house-cum-female-sleeping-quarters.

So ended a very memorable day—a day memorable, not only for the ıming of the new member of the family, but for some grand performances y the best story-tellers on the island.[14]

F. L. S. Bell.

The Australian Museum has recently received by gift four splendid collections of stone nplements, totalling in all about 5,000 specimens, from members of the Anthropological ɔciety of New South Wales. They were donated by Mr. W. H. P. Kinsela, whose collection om the coast of New South Wales included 87 bone implements and two shell fish-hooks, ıe late Mr. A. E. Ivatt, whose specimens were gathered during a lifetime spent in the Bathurst istrict and on trips to the Snowy River and south coast, Mr. P. D. Riddell, whose specimens ·e mainly from far western New South Wales, and Mr. F. A. Davidson, whose collection is om the Singleton district.

[14] It is hoped, in future issues of Mankind, to record and comment upon the legends ıd the myths of the Tanga people. It is also hoped to publish appendices containing ıdditional examples of all three types of the narrative.

Malaya: Social Anthropology. Richardson

Hindu Fire-Walking in Selangor. *By W. J. Richardson, B.A.*

In April the Tamils hold their festival of the New Year, when homage is paid to their deity, the goddess Ammal, and their vows for answered prayers are fulfilled. Of this festival, the fire-walking ceremony is a part. Two types of prayers only demand the ordeal of walking the fire, namely those for the regaining of health and those of barren women for the gift of a child. A sick coolie will bargain with his goddess for good health, and if his prayer is answered he will wait till the arrival of the New Year festival when he can repay her. Ammal, however, must fulfil her part of the contract ere he will present himself to the priest a week prior to the day of the ceremony with his little packages of flower petals. One package is of white petals, the other of red. When these have been mixed by the priest the coolie draws one from the bowl. Ammal signifies her pleasure by means of the petal, for the white petal releases the coolie from his contract, whilst the red indicates the greater favour, the necessity of walking the pit of fire. Any coolie on whom the favour falls prepares himself for the ordeal by a week of semi-fasting, when he partakes of one meal only a day. Each day he visits and makes a triple circuit of the temple, and burns saucers of oil at night before the image of the goddess. During this week he collects his offerings of rice, bananas, betel nut, coconut and varied incense, and weaves his leis of frangipanni against the coming of the New Year.

New Year's Day breaks, and in the evening the coolie, carrying with him his offerings and a new set of clothing, proceeds to the temple in company with his relatives, where the other favoured ones with their relatives are assembled. Here he finds a miniature of the temple built on two stout poles, elaborately bedecked with flowers and with a canopy trimmed with frangipanni to accommodate the image of the goddess. The priest removes the statue from the shrine, and with all-attendant ceremony places it on the centre of the bier. Then the procession, headed by fife and drum, moves slowly down to the river bank, where the priest performs a ritual in front of the image, while the drums continue beating their monotonous rhythm.

When the coolies have washed and donned their fresh clothes, the priest sprinkles with holy water each man, woman and child who is to undergo the ordeal. The spikes which are later to be inserted in the flesh

of the devotee are also sprinkled. (These spikes are of wood, similar in shape to a toothpick, to some of which are attached little coloured glass balls; others are of steel approximately two feet long and an eighth of an inch thick.) When the moment for inserting the spikes arrives, each devotee begins to react to the greatest gift which Ammal in kindness bestows in reward for true faith—he begins to quiver. But even when the rows of pins are inserted in his back, chest and arms, he feels no pain whatsoever, for her gift of insensibility to pain protects him. His eyes are glazed, his steps unsteady, but not even the thousand and eighth spike pains him, nor does the blood flow when his tongue is pierced by a wooden skewer.

When the mutilation is complete, the participants decorate themselves with leis, while others carry in addition a ring of flaming rag soaked in oil around their body. The tempo of the drums quickens and the fife again blares out the strange Eastern music. The bearers raise the temple on to their shoulders and, followed by the priest, they lead the procession back to the temple proper. After the priest marches the band, followed by the man chosen to begin the procession through the pit. He carries on his head a brass bowl decorated with flowers, on top of which rests a cocount. The remainder follow, assisted or retarded (which I am still not sure!) by relatives, while still others carry the trays of offerings. The band plays faster than previously as the procession moves along the decorated pathway to the temple. On the fences hang thin strips of banana palm frond interspersed with flowers, while still more flowers, together with lanterns bearing goodwill messages, hang from any archway overhead. The decorated entrance to the temple is thronged with men, women and children, the women being particularly conspicuous with their gaily coloured sarongs and saris. As the procession approaches, a murmur courses through the crowd, which begins to converge around the end of the pit in which logs still blaze freely.

The pit itself is about twenty feet long, six feet wide and four feet deep, though each year the length is increased by a foot. The fuel for the fire is a mixture of wood from the rubber tree and certain hardwoods from the jungle, which ensure that sufficient coals remain when the ashes are scattered. While the procession is still distant, a bystander throws a small conical shaped package of leaves at the feet of the man tending the fire. Other packages quickly follow, when the contents are thrown into the fire. The substance crackles, for the packages contain common salt. (The purpose of this procedure was to me a little strange at first, but enquiries revealed

that the coolies' quarters have more than their share of bed bugs. The crackle of the salt is an imitation of the "pop" of the crushed insect. Sympathetic magic is evidently not entirely defunct!) Finally the procession enters the precincts of the temple and moves around it three times. During the last circuit the fire is spread evenly over the floor of the pit, and the heat is so intense that those spreading the fire pour water over themselves in their endeavours to keep cool. The crowd perspires freely even though they are fifteen feet distantffrom the edge of the pit. As the last circuit is completed the spectators surge forward to witness the act, and not even the belabourings of men armed with heavy sticks restrain them as they surge forward with eyes glistening and bodies sweating, jostling each other regardless of the smaller children who get squeezed and even trampled upon.

At the entrance of the pit the crowd mysteriously parts, and the man chosen to open the fire walking appears amid the fierce crash and rattle of the drums. He is unassisted, and steps forward into the pit. The crowd roars as he passes through at a pace a little faster than our normal walking pace. He climbs out at the far end, where willing hands relieve him of his headpiece and hurry him into the temple. As the remainder approach the pit, their companions release their hold, and as each in turn moves through they are assisted out and taken inside the temple, where their adornment is stripped from them and they are sluiced down with cold water. The spikes are removed but no blood flows, or are the punctures of the skin whence the spikes are withdrawn easily seen. No signs of burning on the feet are apparent, even though the hair on the legs be burnt off. The only physical effect seems to be a glazing of the eyes, while the gait may be a little unsteady. Ammal has been kind to them and has rewarded them for the completeness of their faith.

The pit is then filled in, not to keep in any evil, but to keep out any who during the celebrations that evening may try to repeat the ceremony without the auspices of Ammal. Consuming toddy in sufficient quantity is no guarantee that Ammal will grant them her wonderful gift.

The ceremony I witnessed took place at Sepang Estate, Selangor F.M.S., and was performed by some of the labour force, Tamil Indians who are immigrants from the south of India.

I had previously thought that fire-walkers were a particular fraternity but from my observations and subsequent enquiry I have learnt that her at least, any coolie may participate in the ceremony.

No. I can't tell you how it is done! W. J. RICHARDSON.

Australia: Archæology. **McCarthy.**

Catalogue of the Aboriginal Relics of New South Wales. Part I. Rock Engravings.

*By Frederick D. McCarthy, Dip.Anthr. (Syd.).**

In the accounts by early chroniclers of the founding of settlement in Sydney, stories of early explorers, and in innumerable books and periodicals, references are to be found to the aboriginal rock engravings, rock paintings, carved trees, stone arrangements, and other relics *in situ* scattered throughout the State. Much confusion exists as to where these sites are situated, and which of them have been properly recorded, and this catalogue has been compiled to clarify the position.

In this part are listed all of the rock engraving sites mentioned in literature, and those which have been reported to the Australian Museum from time to time. They occur in three areas, the Hawkesbury sandstone formation of the central coast, the north coast, and the central and northern parts of western New South Wales. The sites are listed under the counties and parishes within these areas.

The engravings of the central coast are in outline, and comprise the largest number of groups; those of western New South Wales are small intaglios and groups such as those at Sturt's Meadows and Mootwingee consist of countless numbers of figures, some rocks bearing layers of engravings, the work of many generations of artists. The census reveals the wealth of rock art in this State, and the need for legislation for its preservation. (McCarthy[16A] Wright.[33])

(1) Hawkesbury Sandstone Area of Central Coast.

The engravings in this area are limited to the counties of Cook, Cumberland, Hunter, Northumberland and Westmoreland, and they do not appear to occur throughout the distribution of the Hawkesbury sandstone formation. Campbell's memoir[1] forms the basis of the list, and it should be noted that it includes the groups described by Etheridge[8–11, 13] and Dun,[6] and some of those mentioned by Mathews.[17–26] The latter author, a contemporary of Campbell, published numerous papers in which he described separate figures from different groups, and these are listed only where a group is not included in Campbell's memoir. Many unrecorded groups exist in Kuring-gai Chase, between Berowra Creek and the Wiseman's Ferry road, on Mangrove Mountain and in the inaccessible country

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on its west and north, in the Blue Mountains, and other districts, and this list will enable those interested to locate recorded groups and to distinguish unrecorded groups.

COOK COUNTY.

Coomassie (and Magdala) parishes.

Faulconbridge: two groups, one fenced. Informant, P. Croucher. Group beside tributary of Erskine Creek. Informant, S. Erickson.

Irvine parish.

Bell-Kurrajong road, in "Convict's Cave" beside road and three miles past Mt. Tomah: large number of emu tracks (?). Informant, A. B. Powell.

Mt. Caley: group near top. Informant, F. Anderson.

Linden parish.

Woodford, near head of Euroka Creek: concentric circle, axe-sharpening grooves, and other engravings in same district. Towle.[30]

Woodford, 100 yards from northern side of Great Western Highway, at head of gully: three emus and tracks. Informant, S. Erickson.

Wilberforce parish.

Portion 16: man. Mathews,[22] XXVII, p. 540, pl. xxx, fig. 21.

CUMBERLAND COUNTY.

Alexandria parish.

Port Jackson, South Head:

Between Lighthouse and Point: two men, large fish, sunfish, four fish. Campbell,[1] No. 1, pp. 7 and 9, pl. I, figs. 4-5, pl. II, fig. 1.

Within Lighthouse Enclosure: whale, many fish, wallaby, kangaroo, swordfish, two skates and a shark. In two groups, one partly destroyed. Campbell,[1] No. 1, p. 7, pl. I, figs. 2-3.

Lady Bay: at head of bay, two large fish and several small fish; on south point, a shield and portions of kangaroo and other mammals. Campbell,[1] No. 2, p. 9, pl. II, fig. 3.

Four chains from the Gap: hammer-headed shark, bandicoot, kangaroo, six wallabies and a fish. Campbell,[1] No. 2, p. 8, pl. I, fig. 6.

Vaucluse Bay, south side: fish, eel, half kangaroo, two mundoes. Campbell,[1] No. 3 p. 8, pl. I, fig. 7.

Watson's Bay, north side of Keel St.: one fish, human figure (nine chs. to south). Campbell,[1] No. 3, p. 8, pl. I, figs. 8-10.

Point Piper, in Lady Martin's grounds: kangaroo, two men, two sharks, three fish, three circles, foot and line of mundoes. Campbell,[1] No. 5, p. 12, pl. III, fig. 1.

Point Piper, in Sir Daniel Cooper's grounds: whale, 12 fish, shield, two conjoined circles. Campbell,[1] pp. 11-12, pl. II, fig. 12.

Bondi, on Ben Buckler cliffs, at beach end: one side of whale, and a turtle. Campbell,[1] No. 6, p. 9, pl. II, fig. 5. *Reserved.*

Bondi, on Ben Buckler cliffs, near Sewer Tower: warrior (28 chs. to north) and (*a*) seal, shark, a number of fish, boomerang, (*b*) whale, porpoise, sunfish, human figures, basket (?), many fish, two boomerangs, lines of mundoes. *Reserved.* Campbell,[1] Nos. 7-8, pp. 10-12, pl. II, fig. 13; pl. IV, figs. 1-2.

Bondi, on southern headland: shark, two fish, tail of fish. Campbell,[1] No. 9, p. 12, pl. II, figs. 14-15. *Reserved.*

Centennial Park, on allotment 726 in Darvall St.: two boomerangs, waddy, stone tomahawk, wallaby. Campbell,[1] No. 11, p. 10, pl. II, fig. 10. *Destroyed.*

Coogee, in middle of *Recreation Reserve* at north end of beach: four small fish. Campbell,[1] No. 12, p. 10, pl. II, fig. 11.

Botany parish.

Maroubra, 45 feet from cliff near boundary of Church and School Estate: boomerang, shield, fish, man wearing headdress (?), and one other figure. Campbell,[1] No. 1, p. 5, pl. II, fig. 9.

Maroubra, north end of beach, 10 chs. from Athol Park House: shark, man (70 feet away) and one mundoe. Campbell,[1] No. 2, p. 6, pl. III fig. 4.

Long Bay, south shore, eight chs. south-west of Mr. A. Graham's house, Bay Parade: eel, and two circles (10 chs. to south-east). Campbell,[1] No. 3, p. 5, pl. II, figs. 7-8.

Long Bay, north shore, near head of inlet: sunfish and other figures, axe-sharpening grooves. Campbell,[1] No. 3, p. 5, pl. II, fig. 6.

Little Head, 47 feet from Trigonometrical Station: wallaby and small fish, eight fish (10 chs. to south-east). Campbell,[1] No. 4, p. 6, pl. II, fig. 16.

Bumborah Point, near Cemetery, and 20 feet above H.W.M.: two whales (portions only), several fish and human figures. Campbell,[1] No. 5, p. 6, pl. III, fig. 3.

La Perouse, near the pier south-west of the monument: whale with calf inside its outline, a large fish, tomahawk (?), four line figures (indeterminate). Campbell,[1] No. 6, p. 6, pl. III, fig. 2. *Reserved.*

Berowra parish.

Berowra Creek, western shore:

On Mr. Murray's property, beside ferry-slip: three mundoes, woman with child on hip, small fish with indented surface. Informant: E. McCarthy.

Lubeck's Bay, about 50 feet above H.W.M.: kangaroo with indented surface. Mathews,[26] p. 637, pl. XCIX, fig. 32.

Frank's Bight (10 chs. below), visible from water: koala (?), man in ceremonial dress, and several indeterminate figures. Mathews,[17] XI, pp. 99-100, pl. II, fig. 2. *Reserved.*

Calabash Creek (on left bank near junction with Berowra Creek): marsupial, fish on line, other figures (?). Mathews,[26] p. 635, pl. XCIX, fig. 10, and [17] XI, pp. 104-5, pl. II, fig. 13. *Reserved.*

Arcadia, on "Fish-Rock": whale, three kangaroos, emu, three human figures, circle with line, bird, two emu tracks, several indeterminate figures. Walton,[32] pp. 202-3.

Dural, on Tunk's Creek (between Dural and Hornsby) and three miles from Round Corner: two stingrays and four circles. Informant, E. C. Phillips.

Broken Bay parish.

Junction of Telegraph and Larool Roads, near Duffy's Forest. Situated one-quarter-mile down creek, which cuts Larool Road one-quarter mile from junction.

Group I comprises a kangaroo hunting scene, showing hunter, two wives, two kangaroos, eight mundoes, shield and axe-grooves. McCarthy,[16] pp. 44 and 47, fig. 3, and pl. J.

Group II comprises a wombat, four wallabies, kangaroo, flying phalanger, echidna, noose, lyre-bird, boomerang, pubic girdle, shield, 11 bird (lyre-bird) tracks and two indeterminate figures. McCarthy,[16] pp. 47-48, fig. 1, plate I.

Coal and Candle Creek Road, between Harvey and Pittwater Trig. Stations, and three chains east of road: three fish in a row. Campbell,[1] No. 40, p. 52, pl. VIII, fig. 10.

Cowan parish.

Mt. Kuring-gai, Glenview Road, in front of Mr. Springwall's house: insect or fish.

Cowan Railway Signal Box, half-mile to north and beside railway line: turtle. Campbell,[1] No. 17, p. 43, pl. XXIV, fig. 8.

Poppy Trig. Station, carvings situated about 100 yards to east of Berowra Waters Road: double-headed man, culture-hero holding axe, man with club-foot, pubic fringe. *Reserve No.* 68485.

Hecla Trig. Station, south of: scattered figures of double-headed fish (?), kangaroo, human figure. Informant, C. Pryde.

Evelyn Trig. Station, north of: jelly blubber, fish, and one indeterminate figure. Informant, C. Pryde.

Frank's Gully, near ferry-slip, Berowra Waters: opossum, several fish and other figures. *Reserved.*

Shark Rock, upper Berowra Waters: tiger shark, pilot fish, wallaby, fish, and two wallabies nearby. Informant, E. McCarthy. *Reserved.*

Berowra Creek, on shore opposite Rat's Castle Cave: two fish, bird. Informant, E. McCarthy. *Reserved.*

Berowra Station, north side, in bottom of gully about 10 chains from Old Peat's Ferry Road: two kangaroos, nine axe grooves. Campbell,[1] No. 1, p. 40, pl. XXVI, fig. 1.

Peat's Bight, at head of gully on south side of, above portion 22: Series I, circle, 10 mundoes, fish; Series II, three fish and shield (?); Series III, culture hero, seven fish in row, two eels, frill-lizard, bird (?), club. Campbell,[1] Nos. 3, 1 and 2, pp. 50 and 51, pl. XXII, figs. 3, 2 and 1. *Reserved.*

Kimmerikong Creek, on side of gully descending to: figure with five bulbous-headed appendages. Campbell,[1] No. 2, p. 51, pl. XXII, fig. 4. *Reserved.*

Kangaroo Point: four stingrays and other figures. Mathews,[26] p. 636, pl. XCIX, fig. 29. *Reserved.*

Kangaroo Point: weathered figures on high rock ledge. In *Reserve.*

Hawkesbury River Railway Station, about 150 yards south-east of, within portion 9: parrying shield, oval figure, goanna. Mathews,[26] p. 635, pl. XCIX, figs. 8, 9, 27.

Frederick parish.

Maroota north, on Mr. Smith's property and one-quarter mile north of Wiseman's Ferry Road: male and female culture heroes, three kangaroos, kangaroo struck with boomerangs and spear, emu with eggs, scrub turkey with eggs, emu with eggs and three tracks, emu (shield within outline), six boomerangs, three circles, two parrying shields, shield, wallaby, small bird, fish, opossum, wallaby, lyre-bird (?)—on rock 250 yards to south-west are an emu, culture hero, boomerang, netted bag (?). Recorded, but not yet published.

Wiseman's Ferry, at head of creek near Loughlin's Farm in the first bend of the Hawkesbury River south of ferry: animals, fish, and other figures.

Beside Glenorie-Maroota road, and 10 miles from Glenorie: kangaroo and other figures. Informant, L. E. White. *Reserved.*

Glenorie-Maroota road, two to three miles south of Cooper's Creek crossing, on eastern side of road: two men with rayed headdresses, two human figures, culture-hero, two shields, and other figures. Mathews,[22] p. 541, pl. XXX, figs. 24-28, and [26] p. 636, pl. XCIX, figs. 19-20.

Gordon parish.

On portion 75: wallaby, marsupial, 30 axe-sharpening grooves. Mathews,[26] p. 636, pl. XCIX, figs. 13-14.

Hunter's Hill parish.

Glade's Bay, Tennyson, Parramatta River: two opossums, man holding object, large fish, mammal (?), native water-rat, two wallabies, boomerang, part of fish. McCarthy,[18] p. 50, pl. L. *Reserved.*

Kuring-gai National Park.

Cliff Trig. Station, east side of look-out: line of 44 mundoes extending for 150 feet. Campbell,[1] Cowan parish No. 15, p. 45, pl. XXIV, fig. 10.

Cole Trig. Station: Series I (10 chains west), man and woman; Series II (15 chains east), skate. Campbell,[1] pp. 43-44, pl. XXIII, figs. 11-12. Cowan parish No. 12.

Jerusalem Bay, on spur running north from main ridge on north shore of Bay: shield. Campbell,[1] p. 44, pl. XXIII, fig. 13. Cowan parish No. 11.

Jerusalem Bay, on ridge at head of Bay: Series I, male culture hero holding fish; Series II, boomerang. Campbell,[1] p. 41, pl. XXV, figs. 6-7. Cowan parish Nos. 16-17.

Jerusalem, south shore, at head of valley: culture-hero, emu, kangaroo, porpoise, stingray (?), punctured line from pot-hole, axe-sharpening grooves. Campbell,[1] p. 42, pl. XXV, fig. 4. Cowan parish No. 19.

Edwards Trig. Station, on ridge above Little Shark Rock Point: Series I, two whales, small fish, native cat or dingo; Series II (five chains north), kangaroo, portion of whale, eel, two lines; Series III (two chains north, on opposite side of creek), bark canoe (?). Campbell,[1] pp. 44-45, pl. XXV, figs. 2-3. Cowan parish Nos. 13-14.

Cowan Railway Signal Box (15 chains south-east): Series I, snake and native bear (part); Series II, ancestral figure of seal and man combined, man, penguin or shag, two ovals, eel. Campbell,[1] p. 42, pl. XXIV, figs. 7-8. Cowan parish No. 18.

Yatala Trig. Station, one furlong west: two whales, emu, wallaby, two boomerangs, parrying shield, eel, fish, circle, two circles with dots inside outlines, spear-thrower. Campbell,[1] p. 40, pl. XXVI, fig. 3. Cowan parish No. 24. In addition two emus on rock nearby.

Yatala Trig. Station, on saddle of ridge separating Jerusalem Bay and Mangrove Creek: Series I, three emus, three wallabies, skate, man, boomerang, three fish, two kangaroo rats (?); Series II, whale, with man, goanna and circle inside outline; Series III, two native bears, bird, fish, human figure, four shields, two mundoes, one indeterminate. Campbell,[1] pp. 40-41, pl. XXVI, figs. 3-4, and pl. XXV, fig. 5. Cowan parish Nos. 21-23.

Bobbin Trig. Station, half-mile south, and along Old Bobbin Head Road: Series 1 (east side of road), male and female culture heroes, fish, emu, three fish, two eels, phalanger, two wombats, snake, two echidna, jelly-blubber, circle, two shields, three fishing-lines, emu with line on leg, boomerang, club, spear, one indeterminate; Series II (west side of road, half-mile to south), two emus, two men, circle, male and female culture heroes, basket, echidna, six mundoes, wallaby, phalanger, two emus, four birds, two bats, fish, woman, goanna, man's legs. Campbell,[1] pp. 37-39, pl. XXII, figs. 5-6, and pl. XXI, figs. 3-5. Gordon parish Nos. 1 and 3.

Bobbin Head Reserve: goanna, small mammal, bream, four boomerangs. Campbell,[1] pp. 37-38, pl. XXI, fig. 6. Gordon parish No. 2. Also two wallabies, two boomerangs, small fish now destroyed.

Cowan Point: large group of human figures, emus, fish, kangaroos, weapons, snake, etc. Informant, W. J. Walton.

Roach Trig. Station, 20 chains north of: Series I, wallaby, nine small fish in line, boomerang, mammal, man, six fish in line, two axe grooves; Series II, male figure, four shields, three boomerangs, four circles, 17 mundoes in line. Campbell,[1] p. 58, pl. XXI, figs. 1-2. Broken Bay parish No. 37.

Smith's Creek, south shore, on ridge between two bays, and north of Arthur Trig. Station: Series I, four kangaroos in line; Series II, three emus, fish, shield; Series III, two whales, two kangaroos, emu, three shields, three boomerangs, man's leg, fish; Series IV, two culture-heroes, three fish in line; Series V, culture-hero. Campbell,[1] pp. 56-58, pl. XIV, fig. 1; pl. XX, fig. 6; pl. XIV, fig. 7; pl. XVI, fig. 12; pl. XVI, fig. 11. Broken Bay parish Nos. 30 (?), 34-36, 39.

Smith's Creek, north shore, on ridge separating Smith's and Coal and Candle Creeks: Series I, whale or shark; Series II, culture-hero holding shield, dilly-bag and club, bird over chest, fish near foot; Series III, shield; Series IV, culture-hero holding shield, three shields; Series V, culture-hero; Series VI, two culture-heroes;

Series VII, seal-like figure, fish ; Series VIII, three men, one woman, bird, circle, three mundoes, four fish on lines, snake, three other figures unidentifiable. Campbell,[1] pp. 52-55, pl. XII, figs. 13, 16, 11, 15, 12 ; pl. XX, figs. 4-5, 9. Broken Bay parish Nos. 22-28.

Smith's Creek (upper), one chain from Angus's Wharf : wallaby, seven men, one woman, several children, shield, fish on line and five mundoes, 50 feet away. Campbell,[1] p. 56, pl. XIV, figs. 3 and 5 ; pl. XVI, fig. 13. Broken Bay parish No. 29.

Hungry Trig. Station, on spur running west of : Series I, whale, kangaroo, three men, 14 circles, shield, spear, two mundoes, three kangaroo tracks, one indeterminate ; Series II, kangaroo ; Series III, man. Campbell,[1] pp. 55-56, pl. XIV, figs. 7, 4, 6. Broken Bay parish Nos. 31-33.

Ellis Trig. Station, on brow of spur overlooking Coal and Candle Creek : Series I, seal or large fish pierced by spear, three boomerangs, weet-weet (?) ; Series II (10 chains from Series I), whale, shield, fish, boomerang, two clubs. Campbell,[1] p. 52, pl. XII, fig. 2. Broken Bay parish No. 27.

McCarr's Trig. Station, one-quarter mile due north of : two wallabies, three birds, five eels, nine circles, woman with digging-stick, shield, three fish, shield, two men, three echidna, spear-thrower or garfish, 20 mundoes, five circular indentations, 18 axe-sharpening grooves. McCarthy,[16] pp. 49-50, pl. M.

McCarr's Trig. Station, half-mile north-west of, on tessellated rocks : culture-hero and two emus, three wallabies, three birds flying, one bird, mundoes, goanna, 12 fish, five shields, one parrying shield, sword club, and other figures. Informant, Mr. E. A. Holden. Recorded but unpublished.

Coal and Candle Creek and Yeoman's Bay, on ridge between : wallaby. Campbell,[1] p. 59, pl. XIX, fig. 12. Broken Bay parish No. 15.

Coal and Candle Creek, north shore, in vicinity of Waratah Trig. Station : Series I, man in profile ; Series II, emu, fish, four indeterminate marks ; Series III, emu, oval shield, whale with man inside outline, boomerang, turtle, whale or porpoise, culture-hero ; Series IV, whale. Campbell,[1] pp. 59-60, pl. XIX, figs. 14, 13 ; pl. XX, fig. 2. Broken Bay parish Nos. 16-18.

Arden Trig. Station, 15 chains west of : whale, shield near snout. Campbell,[1] pp. 60-61 ; pl. XIX, fig. 15. Broken Bay parish No. 19.

Arden Trig. Station, half-mile south-east of : Series I, two fish with hook inside outline of one, man with boomerang across body, woman ; Series II (10 chains east of Series I), man, two pairs of small fish, large fish, one mundoe, one indeterminate. Campbell,[1] p. 61, pl. XIX, figs. 9, 11. Broken Bay parish Nos. 20-21.

Arden Trig. Station, half-mile south-east of : Series I, two turtles, shield, boomerang (scattered) on west side of road ; Series II, man, three large fish, one mundoe, two men (scattered along rocks extending west from road). Informant, W. J. Walton.

Bushranger's Hill, whale on rock on west side of road and opposite this hill. Informant, W. J. Walton.

Arden and Topham Trig. Stations, between, in marshy swamp : two emus. Informant, W. J. Walton.

Topham Trig. Station, at end of spur running east, and above road : school of 36 fish with shark among them, line of 14 mundoes, running through them, two goannas, wallaby, eel, bat or bird, and man five chains to north-east. Campbell,[1], p. 62, pl. XVII, figs. 7-8. Broken Bay parish No. 11. Other figures not recorded comprise fish, circles, wading bird, mundoes, ceremonial object, etc.

Topham Trig. Station, on grassy slope on west side, and 200 yards from road : male culture-hero holding boomerang, man, woman micturating. Informant, W. J. Walton.

Wallaroo Trig. Station, south of, at head of north arm of Yeoman's Bay : woman, large fish, two boomerangs. Campbell,[1] p. 61, pl. XIX, fig. 8. Broken Bay parish No. 14.

Wallaroo Trig. Station, half-mile south-west of : man, wallaby, echidna. Mathews,[26] pp. 635-6, pl. XCIX, figs. 6, 12, 17.

Willunga Trig. Station : Series I (seven chains south-west of station), one fish ; Series II (half-mile east of station), three eels, two fish, shield. Campbell,[1] p. 61, pl. XIX, figs. 6-7. Broken Bay parish Nos. 13 and 12.

Willunga Trig. Station and Lovett's Bay, between : man with three bulbous appendages on head. Informant, W. J. Walton.

Refuge Bay, at head of creeks flowing into north arm : Series I, whale with woman and stingray inside outline, goanna near fin ; Series II, kangaroo, shield, one mundoe ; Series III, snake. Campbell,[1] pp. 62-63, pl. XIX, fig. 1 ; pl. XVII, fig. 5 ; pl. XIX, fig. 2. Broken Bay parish Nos. 5-6.

Refuge Bay, at head of north arm : large ceremonial figure. Informant, W. J. Walton.

Bairne Trig. Station : Series I (60 feet south-west), human figure, two shields, parrying shield, two boomerangs, emu, mammal, one mundoe, unfinished figure ; Series II (four chains west), five fish. Campbell,[1] p. 65, pl. XIX, figs. 3 and 5. Broken Bay parish Nos. 9-10.

Towler's Bay, at head of Bay and below Bairne Trig. Station : shield, curved line of 10 mundoes crossed by straight line of six more. Campbell,[1] p. 62, pl. XIX, fig. 10. Broken Bay parish No. 10.

Euro Trig. Station : Series I (10 chains north-east), whale with oval near snout, two mundoes, shag, other figures weathered and not recorded, and heaps of loose stones present ; Series II (25 chains north-west), stingray ; Series III (43 chains north-west), two shields, 11 mundoes ; Series IV (46 chains north-west), whale, across which are cut a large fish, three shields and a devil-ray , wallaby, fish on line, shield, circle, 33 mundoes cross group. Campbell,[1] pp. 64-65, pl. XVII, figs. 9, 2-4. Broken Bay parish Nos. 2-4.

West Head, half-mile west of Resolute Bay : kangaroo, fish, large fish and unfinished figure. Campbell,[1] p. 63, pl. XVII, fig. 1. Broken Bay parish No. 1.

Manly Cove parish.

Spit Bridge, on left and bottom of " up " road : two boomerangs, shield, fish (others destroyed). Informant, G. P. Whitley.

Grotto Point, north side of portion 43 on path down to Lighthouse : kangaroo (22 feet long), kangaroo, sunfish, three sharks, several fish, four boomarangs, axe (?), one mundoe, three indeterminate. Campbell,[1] pp. 18-19, pl. V, fig. 15. Manly Cove parish No. 33. *Reserved.*

North Harbour, on spur east of Forty Baskets Beach : 15 shields, three boomerangs. Campbell,[1] p. 18, pl. V, fig. 13. Manly Cove parish No. 32.

Balgowlah : Series I (top of Red Hill along Spit-Manly Road), no record of figures in group ; Series II (on lots 2, 21-22, section 2, portion 85, a few chains north of Spit-Manly Road), whale or shark, fish-like man, three fish, two boomerangs, parrying shield, two shields, two mundoes, two rows of irregular oval and elongate figures, five circles, spear and several indeterminate figures. Campbell,[1] pp. 26, 25, pl. XII, fig. 1. Manly Cove parish No. 30. Both groups *destroyed* by building and quarrying operations.

Manly, on Fairlight Estate : whale, wallaby. Campbell,[1] p. 25, pl. IX, fig. 5. Manly Cove parish No. 31.

Manly, in garden of No. 8, Osborne Road, east end of Cove : marsupial of unusual type 15 feet long, man, other figures said to be under house. McCarthy,[16] p. 56, pl. K, group vii.

Bluefish Point : small group. Informant, W. J. Walton.

Manly Reservoir, three chains north of Curl Curl Creek at head of Reservoir: culture-hero, three boomerangs, shield, goanna, seal (?), pierced by spear, half of male figure, one indeterminate. *Reserved.*

Bantry Bay: Series I (eastern side of steep bluff on eastern creek at head of bay), whale, man in ceremonial costume, two boomerangs, shield; Series II (Sixty feet above H.W.M. between two creeks) totemic figure (turtle and human combined?) with man superimposed, two snakes. Campbell,[1], pp. 19, 21, pl. VIII, figs. 1-2. Manly Cove parish No. 24. On Reserve 41.

Bantry Bay: Series III (north side of head of bay), kangaroo; Series IV (head of bay, on ridge between Middle Harbour and Bate's Creek), two whales; Series V (portion 59, west side of bay), one mundoe; Series VI (portion 3A, near waterfall in Bate's Creek), shield and boomerang. Campbell,[1] pp. 21-22, pl. VIII, figs. 3, 8-9. Manly Cove parish Nos. 21, 25-26.

French's Forest Road: Series I (six chains north-west of Jones Trig. Station), whale, echidna, two kangaroos, wallaby, dingo, two sharks, four eels, two snakes, 13 fish, seven human figures (some holding objects), two human hands, 11 shields, six clubs, six boomerangs, two hafted and one unhafted axes, bark canoe, netted bag, four circles, one mundoe, two bifurcated figures, four indeterminate. Campbell,[1] p. 18, pl. V, fig. 14. Manly Cove parish No. 32. *Reserved.* Series II (on portion 79, and 150 feet from road), whale, portion of whale, fish; Series III (portion 120, three chains from road), three birds; Series IV (portion 121, near quarry), man, shield. Campbell,[1] pp. 18, 22, pl. V, fig. 14; pl. VIII, figs. 14, 13. Manly Cove parish Nos. 21, 2, 1.

Brookvale, on "Flat Rocks," above Warringah Golf Links and beside quarry: Series I, four whales, kangaroo, wallaby, dingo, echidna, seven eels, two sharks (one hammer-headed), eight fish, two shields, club, axe-blade, club, three circles, three bifurcated figures, two human figures, several indeterminate; Series II, three men and one woman, fish, one indeterminate (girdle with pubic apron?); Series III, two dugongs (?), shield, four circles, three human footprints, two indeterminate. Campbell,[1] pp. 20-21, pl. VII, figs. 1-3. Manly Cove parish No. 28. *Reserved.*

Brookvale, beside Allambie Road on eastern side, and north of "Flat Rocks" group: wallaby, skate, dugong, fish, large number of mundoes. Informant, W. J. Walton. Recorded but not yet published. Reserve Nos. 69517-8.

Brookvale, on western side of Allambie Road, behind Mr. Dale's house and in bed of creek: pubic aprons and other figures. Informant, W. J. Walton.

Beacon Hill: Series I (on summit, on portion 808), two fish; Series II (portion 1139, near junction of French's Forest and Oxford Falls Roads), nine human figures (four women, one man has fish between legs), two sharks, seven fish, two spears, two skates, hammer-headed shark, dingo, two kangaroos, three human hands, 10 mundoes, shield, club, two boomerangs, six circles, 12 indeterminate; Series III (near junction of French's Forest and Oxford Falls Roads), three eels in line, three fish, wallaby, goanna, shield; Series IV (near junction of above roads), kangaroo; Series V (portion 927, south side of Greendale Road), kangaroo; Series VI (near top of Beacon Hill on both sides of Greendale-French's Forest Road), four men, five circles, boomerang, foot, line of punctures on north side of road, and three circles, two ovals, and rectangular figure on south side. Campbell,[1] pp. 26-30, pl. XVI, fig. 7; pl. XI, figs. 1, 3, 2; pl. XVI, fig. 8; pl. XVIII, figs. 5-6. Manly Cove parish Nos. 12-18.

French's Forest Road, one mile west of Bare Trig. Station, in swamp: emu and young, wallabies, fish on line, and other figures. Informant, W. J. Walton.

Oxford Falls Road, near bend not far from falls, above a waterfall on left side of road: totemic figure and several others. Informant, W. J. Walton.

Middle and Narrabeen Creeks, on road-line on high ridge, on south side of portions 107 and 110: Series I, two boomerangs, parrying shield, three containers (?), fish, shark, pair kangaroo tracks; Series II, four men (one carrying wallaby) (two superimposed), wallaby and fish over man, six eels, goanna struck by club, five fish, two boomerangs, club, six circles in line, double circle, four circles, 36 mundoes, two pairs kangaroo tracks, snake, four-probged fish spear; Series III, whale, eel. Campbell,[1] pp. 28-29, pl. XV, figs. 1-3. Manly Cove parish No. 3.

Middle Creek: Series I (on portions 1097-98, in valley), two whales, eel, boomerang, hand, three ovals, one indeterminate; Series II (on portion 1103, in valley), five kangaroos; Series III (near portion 1103, on spur above Series II), kangaroo, fish, shield, two indeterminate; Series IV (on portion 1086, near top of flat hill on east side of creek), large oval figure and fish. Campbell,[1] pp. 23-24, pl. IX, figs. 4, 6-7, 10. Manly Cove parish Nos. 3-5.

Middle and Wheeler's Creeks: Series I (on portion 906 and road on north side of saddle), two men spearing two kangaroos, two men throwing clubs, man and portion of another, four sharks, four fish, echidna, oval, three skates, six clubs, two parrying shields, spear-thrower, club, three bullroarers on strings (?), seed or shell ornament, line of mundoes among figures, several indeterminate figures; Series II (on portion 829, five chains from Series I), emu, two shields, boomerang, eel; Series III (near portion 828, on south side of saddle), three kangaroos, four fish, three shields, oval figure, seven mundoes, large indeterminate figure, two shields nearby. Campbell,[1] pp. 22-23, pl. X, figs. 1-3, pl. IX, fig. 8. Manly Cove parish Nos. 16-17. Series I *reserved*.

Wheeler's or South Creek, on south brow of ridge on north side of creek: Series I (on portion 853), circle, two human figures, five fish, eel (scattered); Series II (on portion 875, five chains from Series I), two human figures, fish, skate, two sharks, two eels, koala (?), basket (?), foot, seven mundoes, five emu tracks, about 12 indeterminate; Series III (three chains from Series II), fish, circle, five mundoes, bullroarer, one indeterminate; Series IV (eight chains north of Series III), two bifurcated figures, shield, eight mundoes, stone axe (?), bullroarer (?), circle, rectangular figure, six indeterminate, six mundoes about six chains to north-west; Series V (four chains north-east of Series III), fish, two boomerangs, skate, emu, three circles; Series VI (in rock shelter 20 feet from Series IV), shield, two eels; Series VII (near Series V), five circles, parrying and oval shields, hand with forearm, emu, oval on string, two geometrical figures, four mundoes. Campbell,[1] pp. 30-31, pl. XVI, figs. 5-6, 3-4, 1-2; pl. XVIII, fig. 4. Manly Cove parish Nos. 6, 8, 10.

Wheeler's Creek, on top of ridge on north side of creek: Series I (on portions 834, 837-8), eel, netted bag, bark container (?), others indistinct; Series II (six chains north of Series I), man, shield, two boomerangs, three fish, two mundoes, two lines; Series III (two chains north-east of Series II), wallaby, three fish, eel. Campbell,[1] p. 30, pl. XVI, figs. 9-10; pl. XVIII, fig. 4. Manly Cove parish Nos. 7, 9, 11.

Wheeler's Creek: Series I (on portions 716-17 beside waterfall), two sharks, fish. Campbell,[1] p. 27, pl. XI, fig. 4. *Reserved*. Series II (at head of creek, on reserve 7501), emu; Series III (on portion 746 and road-line), man, whale, kangaroo, wallaby, shield, two large fish. Campbell,[1] pp. 24, 28, pl. IX, fig. 9; pl. XI, fig. 5.

Heathcote parish.

Heathcote: large python. Cridland,[2] p. 143.

Maroota parish.

Portion 40: kangaroo, human figure; portion 32, human figure; portion 99, totemic figure (near Lover's Leap Rock). Mathews,[22] pp. 403-4, figs. 1-4.

(To be continued.)

PROCEEDINGS OF SOCIETIES:

NEW SOUTH WALES:

The Mutability of Social Institutions. *Summaries of two essays by students of the Department of Anthropology, University of Sydney, winners of the New South Wales Society's* 1941 *Prize.*

Mr. K. Francis said that our civilization is in confusion and decay. The study of social institutions has definite point, as institutions are the mechanism of society, and as such are the focus of social change and decay.

Social institutions are relatively permanent ways and means whereby man defines and attains his purposes. These methods of behaviour and social activity are backed up by social recognition. They are the result of the interaction of human minds, growing out of mental response to a stimulus afforded by some recurrent situation.

When new situations (new stimuli) arise, society has to adapt and change its institutions accordingly, and in this process, every human being is a " means and medium " of change.

Society is essentially a dynamic compromise, but institutions show certain structural tendencies antithetical to social dynamism: (1) A tendency towards dogmatism, when the institution becomes divorced from positive experience and reality. (2) A tendency towards opportunism, when the institution resorts to means that are external to the end sought, because it is preoccupied with the vision of the intrinsic worth of that end. (3) A tendency towards schism, when new stimuli give rise to " radical " elements which clash with the " conservative " elements, within the institution.

The process of adaptation and mutation is a constant one, and a critical society is the most successful in this process. Constructive social criticism has a cathartic action on institutions. An uncritical society is in bondage to its institutions, and is in danger of having its whole cultural pattern disrupted by outside influences.

Change is inevitable because society moulds man, while this act of moulding calls up decisions from man which react on the culture.

Economic forces are the most potent spring of change in institutions, e.g. the Renaissance and urban development.

The meeting of cultures involving a clash of industrial and pre-industrial, and a diffusion of mental forces causes change. E.g., the spread of revolutionary doctrines.

Scientific discovery has wrought sweeping transformations, e.g. the intensification and depersonalization in the institution of war.

The action of powerful vested interests (the ruling class) is potent in institutional change, as long as it benefits themselves, e.g. the development from mercantilism through liberal capitalism to present-day monopoly control.

Other forces immediately causing institutional mutation are, briefly, crises, revolutions, wars; State intervention; change of environment; change of personnel and leadership.

It is a valid generalization that institutional mutability derives from human criticism consequent on the rise of new needs.

The factors opposing change are: (1) Tradition, which lends institutions an inherent infallibility. People desire to cling to the sure and known way. (2) Mass conservatism,

arising out of ignorance and social confusion, is rampant when existence is insecure, and when mass-bewilderment at capitalist socio-economic phenomena is so strong, as it is to-day. (3) The power possessing elements who, because they control the organs of propaganda, preserve the *status quo*, so long as it is to their advantage.

Because the general social process is a reciprocal one, institutional change in primitive communities as a result of culture contact (the three agencies being missions, trade and white administration) disrupts the whole cultural pattern with widespread social and psychological repercussions, unless the transformation is from within the primitive social institution concerned, even though there is a stimulus from an external culture. There must be a balance between the external and internal forces of change. It follows that a primitive people responds most advantageously and with least friction to stimuli closely related to what it regards as traditional.

This century has witnessed intensificatory changes in the institution of capitalism, and the rise to dominance of the monopolistic industrial class with international ramifications. A tension is inherent in the present stage of capitalist economy, because it makes for war, which is ultimately opposed to common international economic interests.

The future will reveal whether national loyalites will be sacrificed to capitalist internationalism, or whether the war will overturn the collectivism of vested interests under quasi-democratic government control of to-day, and put truly social collective interests first.

The present war will also decide whether democracy is to mean " bourgeois political democracy " or true economic, social and political equality, and freedom from oppression, for all.

Mr. I. K. Waterhouse has supplied us with the following précis of his prize essay on the same subject.

The central theme around which the discussion took place is expressed in a quotation from Mannheim's *Man and Society*: " Newton's achievement in seeing the falling apple not as an apple, but as an expression of the laws of gravity, has only exceptionally been rivalled in the sociological or cultural sphere . . . We are still at a stage in which we talk about the apple and rarely mention the laws of gravity." In deference to this theme, an attempt was accordingly made to examine the mechanism underlying changes in social institutions, and to discover, if possible, whether there are any apparent laws and principles behind the mechanism. Thus, the major part of the discussion was devoted to the search for and elaboration of principles, and only a small portion was allotted to their application as seen (*a*) in the problem of culture contact in primitive societies, and (*b*) in relation to some of the factors which might influence the emergence of the new " social order " concerning which there is so much talk to-day. The best approach to this problem was thought to be through social psychology rather than through pure sociology or anthropology.

From a theoretical point of view, an *institution* was conceived as basically tracing out some relation between a need existing in individuals and an environment (in its widest sense, i.e. social as well as geographical) which offers the possibility of its satisfaction. It was stressed that necessary components in this relationship were some sort of social recognition

and a degree of permanence. The distinction between a custom and an institution was considered very slight, except that one characteristic of an institution was that it was a form of activity that was at sometime instituted, but this was generally absent in a custom. In line with this conception of the nature of social institutions, the question of mutability consequently was viewed as revolving round changes in these factors which functionally (in the mathematical sense) go to make up an institution. Social institutions are, then, likely to change (i) if some aspect of the environment changes and so alters (*a*) the previously existing possibilities of satisfying the need, or if (*b*) it makes a modification in the system of needs or even, perhaps, calls out a new need, and (ii) if something in the individual changes.

Some of the factors considered as likely to induce change were hence (*a*) *the evolutionary principle*—a term carried over metaphorically to sociology by a number of writers, but apparently looked upon with disdain by some anthropologists—giving rise to (*b*) the view championed by Ogburn and Veblen that invention is the key to cultural change, (*c*) diffusion, borrowing, transmission, and other associated principles, (*d*) changes wrought in outlook owing to the rôle played by intelligence. Examination of these factors made it clear that it is important not to fall into the delusion that institutions have some concrete form ; for in no case do they express anything more than a relationship. In order to escape from this snare and to be able to deal with something more than a disposition in the void, it was pointed out that social institutions are essentially bound up with " social personalities," as the social anthropologist calls them.

In noting that the analysis of change in institutions turns inexorably back to the individual, all that is implied is that the question of mutability has certain " psychological " implications. Of these implications which include variations in temperament and personality structure and attitude, interest, and sentiment systems, one of the most important is the force of habit ; for institutions represent an habitual trend in the way of acting. On the one hand, it makes for stability and imparts a sense of security to the individual, on the other hand, it enables a hardening of institutions frequently spoken of as ossification, and this means that institutions become slow in dissolution and liable to go on existing when the need which called them into existence is no longer present, or even when some new adjustment would seem necessary.

Having established a theoretical basis, an attempt was then made to see the working out of the principles in the reports of a symposium on acculturation (*Amer. Anthrop.*, Jan.-March, 1941), and also in the problem of native colonial policies. Here objection was taken to the prevalent tendency of some statesmen to assume unblushingly that the European way of life and European " civilization " is superior to that of the Aborigines, so that they have imposed institutions believed to be the best, without proper evaluation, e.g. with Christianity. One of the main points that emerged from these glimpses of primitive society was that a transformation of society is inconceivable unless it be tacked on to corresponding changes in the human personality ; and the rate at which personality can change will determine the rate at which social institutions could undergo change without bringing disaster in their wake.

Finally, in turning to our own society, many institutions were seen to need changing and methods of doing this without either a revolution or a 200-year plan were suggested. The

ntemporary crisis was thus regarded as involving a re-education of personalities—the task any social reconstruction is to create the needs, the attitudes, the habits, and the sentiments ecessary before changes will be accepted. Our greatest need at the moment is not primarily a adequately formulated social philosophy, rather is it the triumph of the intellectual and ie rational over all activity that may be governed by direct thinking. The dissemination nd pursuit of knowledge would bring with it its own reward; its own social philosophy, nd perhaps, too, its own moral integrity.

cientific Wanderings in Arnhem Land, *by Dr. A. Capell. Delivered at the meeting on st June,* 1942.

An account of the parts of Arnhem Land visited by the lecturer was given, followed by detailed discussion of the languages of this interesting ethnological area of Australia.

SOUTH AUSTRALIA:

n Informal Talk on Papua, *by Dr. F. E. Williams, Government Anthropologist, Papua. elivered at the meeting on 9th February,* 1942.

The lecturer dealt with the effects of mission work at Kavari, and social conditions of the atives of the territory at present. He also described the practice of wearing homicidal emblems.

Mr. N. B. Tindale described some interesting casts of human hands holding aboriginal ools. The technique had been developed by Dr. T. D. Campbell, the mould first being made f agar jelly, with plaster cast into the mould after the hand had been withdrawn from the lastic material, leaving the tool in position in the mould. A fine sorcerer's kit from the ractically extinct Diera tribe was exhibited; it was obtained for the South Australian luseum by Mr. E. Vogelsang after many years of effort.

ecent Developments on Later Finds of Pre-Historic Man. *Delivered at the meeting n 30th March,* 1942.

Dr. T. D. Campbell spoke at length on the interest evinced in the finding of the Java and ekin specimens, and dealt more particularly with these from the dental aspect, and discussed he skull capacity. Professor F. Goldby discussed the position of Sinanthropus in relation o other finds of fossil man.

he Mound of Megiddo, *by Capt. Frank Fenner. Delivered at the meeting on 27th April,* 942.

The excavation of this Mound City was started in 1903 by Schumacher, a German esident of Haifa, who reached a depth of 100 feet, and recently by the Oriental Institute of hicago. From about 1925 the work was financed by J. D. Rockefeller, Jnr. The Fortress ity existed before the 12th dynasty, and covered thirteen acres. The system adopted during xcavation had been to remove a section of the stratum layer by layer, classifying and photo- raphing in detail every item of importance discovered. Seven layers of strata existed, but p to date the excavation had not reached beyond stratum IV. War, disease, fire or siege narked the end of each era, and upon the site of the old, each new city arose. The depth of ach stratum was from three to four feet. The results of the excavation of strata I to IV vere described. Megiddo was not occupied after 350 B.C.

VICTORIA:

Brown Men and Red Sands. *Exhibition of a film shown before the Society by Mr. H. R Balfour on 10th December,* 1941.

This film was taken by Mr. C. P. Mountford, Assistant Ethnologist fo the Adelaid Museum, and received the highest award for amateur films for Australia for 1941.

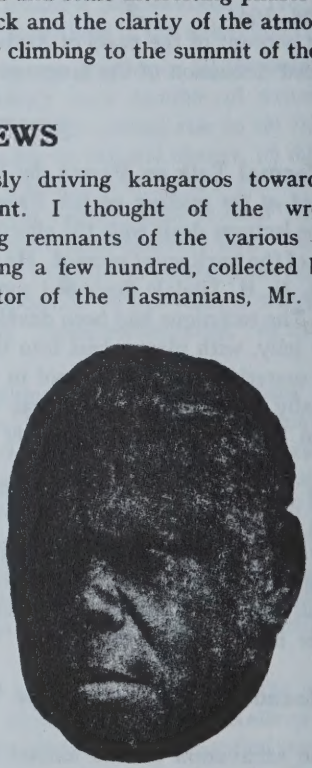
The film depicted scenes in the Musgrave Ranges, Ayers Rock and other places in th Central Australian Aboriginal Reserves, and was greatly appreciated by members. I showed very clearly the nature of the country traversed and some interesting phases in th life of the aboriginals. The enormous size of Ayers Rock and the clarity of the atmospher in that area was revealed in the section showing a party climbing to the summit of the rock and taken from the plain.

NOTES AND NEWS

Truganini: A Retrospect.

We are indebted to Mr. E. A. Holden, O.B.E., for this particularly fine portrait of Truganini; it is on a "carte de visite" which he received by the courtesy of Mr. E. S. Jeanneret. Truganini was the last of the Tasmanian aborigines to die in Tasmania, on 8th May, 1876, at the age of 73, but several other women appeared to survive her on Kangaroo Island, S.A., where the last of them died in 1888.

A little while ago I stood beside the skeletal remains of that remarkable woman which stand as a sentinel at the entrance to the Hobart Museum. I thought of the tragic disputes and misunderstandings between the white settlers and the natives, and the gradual dispossession of the tribes' favourite hunting-grounds. I thought of the costly but ineffectual "Black War" of 1830, when under Governor Arthur's orders a cordon was thrown across the island and 3,000 men unsuccessfully tried to drive the tribes on to East Bay Neck, where they might be captured and removed to a defined aboriginal station. I thought of the unmerciful shooting, at Risdon near Hobart, in 1804, of a hunting party of aboriginal men, women and children, estimated at 300, who in their search for food were harmlessly driving kangaroos towards th settlement. I thought of the wretche surviving remnants of the various tribes numbering a few hundred, collected by th Conciliator of the Tasmanians, Mr. G. A



Robinson, and transferred to Flinders Islan Removed from the old aboriginal heritag of the mainland, and provided wit unsuitable food, nostalgia and disease too their toll, and 12 years later only 44 nativ remained.

And I thought of the time on the Arth River when the woman whose earthly remai now stood before me had saved the life